

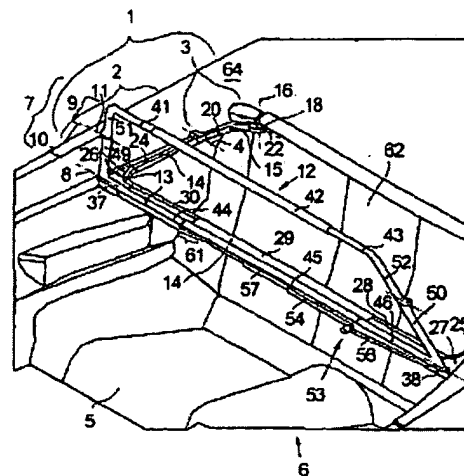
# Wind protection unit for convertible, comprising cover element and wind deflector, each assembled of two main parts

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## Abstract of DE10345292

A cover device (1), designed as a U-shaped frame (14, 15) permanently joined to the car body, can be swiveled into a horizontal position above the rear seats (6) after the backrests have been folded to the front. A second U-shaped frame (12, 13) is attached to the cover (1), serving as a wind deflector (7) when swiveled into a vertical position. Each of the frames (12-15) is divided by a horizontal axle (4, 11) facilitating a particularly compact folding. Both parts (1, 7) can be rotated around a common transversal axle (8) in order to be stored behind the backrests of the rear seats (6).



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## Description of DE10345292

[0001] The invention concerns a wind bulkhead for a motor vehicle with folding or convertible roof, with the characteristics indicated in the generic term of the patent claim 1.

### State of the art

[0002] A such wind bulkhead is arranged in the DE 101 21 825 A1 behind the Fondsitzen of a Cabriolets. The wind bulkhead is about vertically arranged in a storage situation behind the upright backrests of the Fondsitze and can be unfolded with backrests of the Fondsitze from the vertical storage situation, swivelled forward, into an operation position. Take off-hurry the wind bulkhead into a horizontal taking off situation over the sitting hurry of the Fondsitze and a wind protection part tiltable fastened to the front end of the taking off part into one of take off-hurry upward managing wind protection situation moved. That take off-hurry and the wind protection part are trained with a relatively large surface extending plate-like and require an accordingly large free space when swivelling as well as in the storage situation. In the storage situation of the wind bulkhead vertical extending of the taking off part and parallel the for this arranged wind protection part prevents for example the use of a ski bag in a depressing opening in the backrests the Fondsitze, which could take up taken off oblong articles forward such as skis.

### Setting of tasks

[0003] The task is appropriate for the invention to reason to indicate a wind bulkhead for a motor vehicle as the characteristics in the generic term of the patent claim 1 which is to be stowed away in the storage situation more space-saving.

[0004] This task is solved by the characteristics indicated in the patent claim 1. Favourable arrangements of the invention are entnehmbar the Unteransprüchen.

[0005] At least the wind protection part split in an upper and a lower wind protection element can together with take off-hurries to be space-saving folded up. In the storage situation behind the upright backrests of the Fondsitze are the wind protection elements of the wind bulkhead part and take off-hurry about vertically and about parallel to each other arranged, whereby the wind bulkhead requires an accordingly small free space behind the backrests of the Fondsitze. Vertical extending of the folded up wind bulkhead can be kept so small the fact that in a depressing opening within the range of the backrests of the Fondsitze a ski bag or such a thing is to be arranged, which can be unfolded under the folded up wind bulkhead forward up to the backrests of the front seats and then according to long articles such as skis take up can. During a preferential arrangement the wind bulkhead is changeable in its width extending and can be adjusted thereby both in the storage situation and in the operation position to the respective width of vehicle.

### Remark example

[0006] A remark example of the invention is more near described on the basis a design. Show

[0007] Fig. 1 a simplified perspective opinion on the wind bulkhead in operation position, whereby the taking off net of the taking off part and the wind protection net of the wind protection part are not represented,

[0008] Fig. 2 the frame parts of the wind protection part and the taking off part in an explosion opinion,

[0009] Fig. 3 the wind protection part folded up into the level of the taking off part, whereby take off-hurry in its taking off situation rules,

[0010] Fig. 4 a plan view on in Fig. 3 represented wind bulkhead and

[0011] Fig. 5 a simplified cutaway view by the elevation adjustment mechanism for the change of the altitude of the wind bulkhead, arranged behind the upright backrests of the Fondsitze.

[0012] In Fig. 1 wind bulkhead represented in a simplified perspective opinion is intended at a motor vehicle with folding or Klappverdeck and points a two-piece take off-hurries 1 with front 2 and a rear taking off element a 3 up, which is tiltable connected around a drag axis 4 running in vehicle transverse direction. In the figure are the two taking off elements 2, 3 in their about horizontal taking off situation, in which the taking off elements 2 and 3 are one behind the other arranged over the sitting hurrying 5 of the Fondsitze 6 approximately in a horizontal level. At the front boundary region of the front taking off element 2 a two-piece wind protection part of 7 is tiltable fastened around an axle 8 running in vehicle transverse direction.

[0013] The wind protection part of 7 exhibits an upper 9 and a lower wind protection element 10, which are tiltable connected around a transverse axis 11 running in vehicle transverse direction. In the represented wind protection situation the two wind protection elements 9 in a vertical level are arranged one above the other and extend from the front edge of the front taking off element 2 upward. The lower wind protection element 10 is tiltable connected with the front taking off element 2 around the axle 8. The two wind protection elements 9, 10 exhibit in each case a wind protection framework 12, 13, the u-shaped trained and at their turned thigh ends around the transverse axis 11 are tiltable connected. In way similar in addition the two taking off elements 2, 3 in each case an u-shaped frame fairing 14, 15 exhibit, which is tiltable connected at their turned thigh ends around the drag axis 4.

[0014] At the two frame fairings 14, 15 a not represented, common taking off net is fastened, which is fastened to a supporting rope arranged in vehicle transverse direction to its page ranges to the lateral thighs of the frame fairings 14, 15 and in the range of the base of the front frame fairing 14 as well as between the rear final ranges lateral thighs of the rear frame fairing 15 in each case. The basis of the rear u-shaped frame fairing 15 forms the supporting rope arranged between the rear final ranges of the lateral thighs of the rear frame fairing 15. The rear ends of the lateral thigh elements 20, 21 of the rear frame fairing 15 are tiltable around a moving axle 16, 17 in each case vertical in the taking off situation at the vehicle body and/or. to an adjusting element, those fastens 18, 19 höhenverstellbar arranged to it in the Fig. 2 and Fig. 5 is simplified represented.

[0015] Between the u-shaped wind protection frameworks 12, 13 a common, in the figure not represented wind protection net is arranged, that at its page ranges in each case at the lateral thighs of the wind protection frameworks 12, 13 and in the wind protection situation above and/or. down is fastened to a supporting rope, which runs within the range of an assigned base of the wind protection frameworks 12, 13 in vehicle transverse direction. The supporting rope are at their lateral ends for example in each case at a corner area of the wind protection framework concerned 12 and/or. 13 fastens. As can be taken from the figure, the outer circumference of the two together regarded wind protection frameworks 12, 13 in the wind protection situation forms a tapered form, whereby the bases of the wind protection frameworks 12, 13 are parallel arranged and the thighs of the wind protection frameworks 12, 13 laterally in each case diagonally inward and runs above.

[0016] In Fig. the wind bulkhead without the wind protection net and the taking off net are simplified represented 2 in an explosion representation, from which the substantial construction units of the wind bulkhead are to be inferred. The rear thigh elements 20, 21 of the rear frame fairing 15 are fastened around a vehicle transverse axis 22 tiltable to two laterally opposite lying adjusting elements 18, 19. In the figure both adjusting elements 18, 19 the connecting supporting rope 23 is recognizable, which forms the basis of the rear frame fairing 15. The front frame fairing 14 is represented likewise with its substantial parts and exhibits two front thigh elements 24, 25, in the back by the drag axis 4 running in vehicle transverse direction with the front ends of the rear thigh elements 20, 21 in each case is articulated connected.

[0017] The front ends of the front thigh elements 24, 25 are in each case with an assigned end piece 26 and/or. 27 connected. The basis of the front frame fairing 14 exhibits essentially three telescopic against each other adjustable parts of 28, 29, 30, whereby the parts limited against each other are adjustable 28 and 29 over a tap slotted hole guidance 31 and the parts of 29 and 30 over a tap slotted hole guidance 32 in vehicle transverse direction. The tap slotted hole guidance 31 exhibits for example a tap 33 which is away from the part of 28, which rises up into a slotted hole 34 at the part 29 inside. In similar way the tap slotted hole guidance 32 exhibits for example a tap 35 which is away from the part of 30, which intervenes in a slotted hole 36 in the part 30. The part of 30 is firmly connected with a side piece of 37. On the other vehicle side the part 28 connected with the assigned side piece 38 is firmly. After the assembly of the wind bulkhead the end pieces are 26 and/or. 27 in each case with the assigned side piece 37 and/or 38 around a moving axle 39 vertical in the operation position and/or. 40 tiltable connected. The moving axles 39, 40 of the front frame fairing run parallel to the moving axles 16, 17 of the rear frame fairing 15.

[0018] The upper wind protection element 9 and the lower wind protection element 10 point in each case three telescopic against each other adjustable parts of 41, 42, 43 and/or. 44, 45, 46 up, in vehicle transverse direction limited by those the parts of 44, 45 over a tap slotted hole guidance 47 and the parts of 45, 46 over a tap slotted hole guidance 48 against each other is adjustable. In way comparable in addition the parts of 42, 43 adjustable over a tap slotted hole guidance 65 are and the parts of 41 and 42 over a tap slotted hole guidance 66 limited to each other in vehicle transverse direction. In the operation position arranged thigh the 49, 50 of the lower wind protection element 10 about vertically diagonally upward and inward are with the part of 44 assigned in each case and/or. 46 angle-rigidly connected. In way similar in addition the thighs 51, 52 of the upper wind protection element 9 with the assigned part 41 are angle-rigid in each case and/or. 43 firmly connected. The turned ends of the thighs 49, 51 and/or. 50, 52 is tiltable connected around the transverse axis 11 running in vehicle transverse direction.

[0019] In Fig. a width change mechanism 53 is represented 2 to the axle, the two together propelled, toward 8 crank gears working opposite exhibits. The crank gears are propelled stretched double-armed crank lever 54 over a common, which is tiltable around the central drag axis 55 at the middle part 45. In each case at a lever arm of the crank lever 54 the piston rods 56, 57 are tiltable linked, which are articulated connected for the axle at their outside ends with an assigned, toward 8 adjustably led lockbolts 58, 59 in each case. The lockbolts 58, 59 are in each case outward arranged laterally and can be put for instance into the operation position of the wind bulkhead by an appropriate lagging of the crank lever 54 laterally outward into in each case an assigned, not represented check recess in a side panel range of the motor vehicle or be adjusted toward an unblocking situation laterally inward from this check recess. If the lockbolts 58, 59 are in their check situation, then the wind bulkhead can take up large horizontal and

vertical forces.

[0020] With the lateral adjustment movements of the lockbolts 58, 59 the outside parts of 28 and 46 as well as 30 and 44 laterally outward or inward adjusted, there the lockbolts 58, 59 on the one hand with the part 28 or 56 or 38 and on the other hand with the part 30 or 44 or 37 are connected in each case. The parts of 28 and 46 as well as 30 and 44 are in each case around the axle 8 tiltable connected and toward to the axle 8 axially to each other fixed. With the lateral adjustment movements of the lockbolts 58, 59 the front thigh elements swivel 25, 26 in each case together with the assigned end piece 26 and/or. 27 around the moving axle concerned 39 and/or. 40. At the same time the thigh elements swivel 20, 21 around the moving axles assigned in each case 16, 17. With the penetration of the lockbolts 58, 59 into the check recesses the wind bulkhead widens itself and adapts to the width of the passenger compartment accordingly. By the widening of the wind bulkhead in each case in the range of the basis of the front taking off element 2 and the supporting rope as well as that in the range of the basis of the upper as well as the lower wind protection element 9, 10 become the basis of the rear taking off element 3 screen end supporting piece 23 in vehicle transverse direction strained, whereby the wind protection net as well as the taking off net become strained.

[0021] Are the two wind protection elements 9, 10 in their wind protection situation and the two taking off elements 2, 3 in their taking off situation like that are the wind protection elements 9, 10 and the taking off elements 2, 3 to each other in each case over an assigned, spring-tensioned rest mechanism actuated against each other held. By an appropriate strength and/or. Moment effect are solvable the rest mechanisms.

[0022] In Fig. 3 is against each other into the level of the front taking off element 2 folded the two wind protection elements 9, 10, whereby the two taking off elements 2, 3 are in their horizontal operation position over the sitting hurrying 5 of the Fondsitze 6. In this opinion the width change mechanism 53 is recognizable, itself as in Fig. 2 in einer Zwischenlage befindet, die sich kurzzeitig beim Verstellen der in Fig. 2 indicated lockbolts 58, 59 of the check situation into the unblocking situation and/or. turned around results in. At the part of 29 of the front taking off element 2 a projection/lead 60 is trained, the one automatic resetting of the lockbolts 58, 59 and/or. a swivelling of the crank lever 24 around the drag axis 55 from the check situation into the unblocking situation prevents. For this is at the pitman 57 a range 61 planned, which comes when swivelling the crank lever 24 from downside at a rejecting edge of the Vorsprunget 60 to the plant, then is laterally in such a manner flexibly expenditure-steered the fact that the range 61 the projection/lead 60 can spread and thus the crank lever 24 as well as the lockbolts in the bolting device situation actuated holds 58, 59 and/or a back misalignment into the unblocking situation prevented.

[0023] The partly folded up arrangement of the wind bulkhead in Fig. 3 is in Fig. 4 in a plan view represented, which is entnehmbar further details.

[0024] In Fig. 5 it is recognizable that the two are höhenverstellbar arranged laterally opposite lying adjusting elements 18, 19 behind the upright backrest 62. At least in each case with the assigned rear thigh element 20 and/or. 21 connected part of the adjusting elements 18, 19 is tiltable around the vehicle transverse axis 22 from an about vertical situation into the represented operation position of the taking off elements 2, 3. Thus the folded up parts of the wind bulkhead are lowered opposite the upper edge 63 of the upright backrests 62 and from the backrests 62 covered to arrange. If the adjusting elements 18, 19 in the high situation represented by a horizontal taken off line are in the operation position of the taking off elements 2, 3, then briefly forward the swivelled backrests 62 can be moved again into their upright normal position back.

[0025] In place of the two with the remark example used taking off elements can also only one taking off element or more than two taking off elements be intended. The taking off net and/or the wind protection net can be replaced for example by a flexible or firm part. Likewise the wind protection elements and/or that can be formed at least taking off element by plattenförmige, for example even elements. With the remark example in each case three telescopic against each other adjustable parts are intended for the basis elements of the front taking off element and the upper and lower wind protection element. Likewise for this only two or more than three telescopic adjustable parts can be used. The width change mechanism can be or be void also by another width change mechanism gebildetn.

### **Claims of DE10345292**

1. Wind bulkhead for a motor vehicle with folding or convertible roof, which take off-hurry and a wind protection part exhibits, which is arranged around an axle tiltable connected and with nonusage behind the backrests by Fondsitzen about vertically, whereby take off-hurry to the vehicle body is tiltable fastened and with backrests swivelled forward into a horizontal taking off situation over the sitting hurrying of the Fondsitze is tiltable and at the same time or after it the wind protection part is tiltable forward above around the axle into an about vertical wind protection situation, by the fact characterized that at least the wind protection part (7) exhibits two wind protection elements (9, 10), which are one above the other arranged around a transverse axis (11) tiltable connected and in the wind protection situation in a vertical level.
2. Wind bulkhead thereby characterized in each case that the two wind protection elements (9, 10) exhibit a wind protection framework, to which a wind protection net or a common wind protection net either in each case is fastened.
3. Wind bulkhead according to requirement 2, by the fact characterized that each wind protection framework of the two wind protection elements (9, 10) is trained u-shaped and the thighs (49, 50 and/or. 51, 52) of the two wind protection frameworks each other turned and at their ends around the transverse axis (11) is tiltable connected.
4. Wind bulkhead according to requirement 2 or 3, by the fact characterized that the outer circumference of the two wind protection frameworks forms a tapered form together taken in the wind protection situation, whereby the bases of the wind protection frameworks are parallel arranged and the thighs (49, 50, 51, 52) the wind protection framework laterally in each case diagonally inward and runs above.
5. Wind bulkhead after one of the requirements 1 to 4, by the fact characterized that take off-hurry (1) at least two taking off elements (2, 3) exhibits, which are tiltable connected in the taking off situation in a horizontal level one behind the other arranged and around a drag axis (4).
6. Wind bulkhead according to requirement 5, by it characterized in each case that the two taking off elements (2, 3) exhibit a frame fairing, to which a taking off net or a common taking off net either in each case is fastened
7. Wind bulkhead according to requirement 6, by it characterized that in taking off situation front frame fairings u-shaped is trained and exhibits in front in vehicle transverse direction a running base, from whose page ranges a thigh element (24, 25) to the rear is away in each case.
8. Wind bulkhead according to requirement 6 or 7, by the fact characterized that in taking off situation rear frame fairings it exhibits two lateral thigh elements (20, 21), which are tiltable fastened to their rear ranges to the vehicle body (64) around a moving axle vertical in taking off situation (16, 17) and a supporting rope (23), running in vehicle transverse direction, is fastened

to its lateral ends to the rear ranges of the thigh elements (20, 21) in each case.

9. Wind bulkhead according to requirement 8, by the fact characterized that each other turned ends of the thigh elements (20, 21, 24, 25) of the front frame fairing and the rear frame fairing are tiltable connected around the drag axis (4).

10. Wind bulkhead after one of the requirements 7 to 9, by the fact characterized that the thigh elements (20, 21) of the rear frame fairing are fastened around one within the range of the vehicle transverse axis (22) perpendicularly to the vehicle transverse axis (22) trained moving axle (16, 17) tiltable to the vehicle body (62) in each case and the thigh elements (24, 25) of the front frame fairing are tiltable connected with a page range of the base of the front frame fairing around a moving axle (39, 40) in each case and the moving axles (16, 17, 39, 40,) of the thigh elements (20, 21, 24, 25) of the front and rear frame fairing in the taking off situation about vertically are arranged.

11. Wind bulkhead after one of the requirements 1 to 10, by the fact characterized that the wind protection part (7) and/or. the wind protection elements (9, 10) and/or. if necessary the upper and lower wind protection framework and/or. if necessary the bases (41, 42, 43 and/or. 44, 45, 46) the wind protection framework and/or take off-hurry (1) and/or. if necessary the front frame fairing and/or. if necessary base (28, 29, 30) of the front frame fairing by telescopic against each other adjustable parts is formed and/or. are, which are adjustable between a bolting device situation and an unblocking situation over a width change mechanism (53) against each other.

12. Wind bulkhead according to requirement 11, by the fact characterized that at at least a laterally outside part (28 or 38 or 46 and/or. 30 or 37 or 44) of the telescopic adjustable parts a laterally outward distant lockbolt (58, 59) is fastened, which intervenes in a check situation in a lateral check recess in a side panel range of the motor vehicle and is adjusted in an unblocking situation from the check recess.

13. Wind bulkhead after one of the requirements 1 to 12, by the fact characterized that in the wind protection situation the two wind protection elements (9, 10) and/or. if necessary the upper and lower wind protection framework and/or. if necessary the thighs (49, 50, 51, 52) of the two wind protection elements (9, 10) and/or the two taking off elements (2, 3) and/or. if necessary the frame fairings of the taking off elements (2, 3) and/or. if necessary the thigh elements (20, 21, 24, 25) the frame fairing over an assigned spring-tensioned rest mechanism are actuated against each other held in each case, by an appropriate strength and/or. Moment effect is solvable.

14. Wind bulkhead after one of the requirements 1 to 13, by the fact characterized that the common wind protection net of the two wind protection elements (9, 10) and/or if necessary the common taking off net of the two taking off elements (2, 3) at the page ranges of the concerned laterally opposite lying thigh (49, 50 and/or. 51, 52) of the two wind protection frameworks and/or. if necessary the thigh elements (20, 21 and/or. 24, 25) the frame fairing and within the range of the bases of the wind protection frameworks and/or. the base of the front frame fairing and between at the vehicle body (64) tiltable ends of the thigh elements (20, 21) of the rear taking off element (3) fastened if necessary and/or. Frame fairing to in each case the concerned laterally opposite lying thigh (49, 50 and/or. 51, 52) and/or. Thigh elements (20, 21 and/or. 24, 25) connecting supporting rope (23) is fastened and/or. , those are in the bolting device situation are strained and thus the wind protection net concerned and/or. Taking off net in tension holds.

15. Wind bulkhead after one of the requirements 1 to 14, by the fact characterized that in each case with a rear range of the thigh elements (20 and/or. 21) an adjusting element (18 and/or. 19) over the vehicle transverse axis (22) at the vehicle body (64) from about upright storage situation into the operation position forward above is tiltable, whereby at the adjusting element (18 and/or.

19) the moving axle (16 and/or. 17) is trained and the adjusting elements (18, 19) behind the upright backrests (62) of the Fondsitze (6) are höhenverstellbar arranged.